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# Section 1

### **1.0 Introduction**

This document provides reference information for the evaluation testing of an internal modem based on *Host Signal Processing* Data/Fax/Voice Modem Technology. The HSP56<sup>TM</sup> MR evaluation card eliminates the redundant hardware parts found in most modems today. These include the data pump, a controller, and an additional UART and external memory as required in a conventional approach. In addition, the complete HSP solution allows an internal modem to be upgraded with enhancements and features through software upgrades rather than a chip change or board swap.

### **1.1 System Requirements**

- M/B with Intel 810/820 chipset.
- 64MB RAM
- Windows 95(Includes OSR1/OSR2), Windows 98 SE, Windows NT4.0 and Windows 2000.

### **1.2 Features**

### DATA

#### Supported Communication Standards

\*K56Flex, V.90, V.34, V.32bis, V.32, V.22bis, v.22, V.21, V.23, Bell212A, Bell 103

Data Compression	Error Correction
V.42bis	V.42 LAPM
MNP 5	MNP 2,3,4

# FAX

#### **Supported Protocols**

V.8bis, V.80, V.17, V.29, V.27ter, V.21 Channel 2 EIA Class 1

#### **Operating System Compatibility**

Windows 95 Windows 98 Windows NT 4.0 Windows 2000

#### **General Features**

AT Commands Auto Fallback Auto Selection of COM Port and IRQ settings Caller ID Data/Fax/Voice/Speakerphone (requires full duplex sound card) High throughput Virtual UART, DTE rate up to 115,200 ISA/PCI Bus interface Low power consumption Signal Quality Monitoring and Auto Retrain

Windows is a registered trademark of Microsoft Corp. K56Flex is a registered trademark of Rockwell and Lucent Technologies.

# Section 2

### 2.0 HSP56<sup>TM</sup> MR Setup using Windows 95 OEM Service Release 2

The HSP56<sup>TM</sup> MR driver will automatically handle all variations of CPU types. This eliminates the problem of poor performance that results from installing the incorrect driver. The driver will take advantage of the MMX enhancements if available.

1. If another HSP56<sup>TM</sup> MR driver was previously installed, be sure to remove the software by following the appropriate Uninstallation Procedure provided in the prior manual.

When the computer is turned off, plug the HSP56<sup>TM</sup> MR card into an empty AMR slot. After the system is turned on, it will automatically detect the MR card. The installation program will begin with the screen shown below. At this point, insert the HSP56<sup>TM</sup> MR driver disk in the CD-ROM drive and click "Next". Follow the "Wizard" installation instructions.

Update Device Driver	₩izard
	This wizard will complete the installation of:
	PCI Card
	by searching your local drives, network, and Internet locations for the most current driver.
	If you have a disk or CD-ROM that came with this device, insert it now.
	It is recommended that you let Windows search for an updated driver. To do this, click Next to continue.
$\diamond$	
	: 
	< Back Next> Cancel

2. System found the device, Click "Finish".



3. The installation program will request the "Setup" file. Click "OK".



4. Type "D:\" in the prompted field and click "OK" to continue the installation.



5. After the installation is complete, the following modem listing should be shown under "Modem Properties" in the "Control Panel".

odems Properties	? >
General Diagnostics	
The following modems a	re set up on this computer:
MSP56 MR	
l	
Add Remov	e P <u>r</u> operties
Dialing preferences Dialing from: New Location	
Click Dialing Properties to mod dialed.	ify how your calls are
<u>D</u> ialing Pr	operties
	OK Cancel

#### **New Feature:**

The HSP56<sup>™</sup> MR should be connected to an analog line. If the HSP56<sup>™</sup> MR is connected to a digital line, the modem could be damaged. The message below will appear if the user attempts to use the modem while connected to a digital line.



# **Country Selection Change:**

The country selection can be changed after the installation is completed. Follow the procedure outlined below.

1. Click "HSP56 MR" under "Control Panel".



2. Click and highlight the country in which the HSP56<sup>TM</sup> MR will be used. Click "OK" when finished.

Country Selection	×
56K Country:	<u></u> K
USA USA	
PORTUGAL S.AFRICA	
Selecting a SINGAPORE	h you are currently
the telecom SWEDEN	fed in a way that violates It country.
SWITZERLAND	
In addition, URUGUAY	perly if the correct country
Createortes	and the second sec

### Uninstallation:

The HSP56<sup>™</sup> MR can be uninstalled by using the following procedure.

1. Click "Add/Remove Programs" under "Control Panel".



2. Choose HSP56 MR Drivers. Click "Add/Remove..".



3. Click "Yes". The uninstallation program will automatically remove the HSP56<sup>™</sup> MR from the system.



4. The HSP56<sup>™</sup> MR has been removed from the system. Click "OK".

Add/Remo	ve Programs Properties	? ×
Install/Uni	install   Windows Setup   Startup Disk	
æ	To install a new program from a floppy disk or CD drive, click Install.	-ROM
	Instal	
3	<u>I</u> he following software can be automatically remo Windows. To remove a program or to modify its in components, select it from the list and click Add/Remove.	oved by istalled
	Add/ <u>H</u> em	ove
	OK Cancel	Apply

### HSP56<sup>TM</sup> MR Setup using Windows 98

The HSP56<sup>TM</sup> MR will automatically handle all variations of CPU types. This eliminates the problem of poor performance that results from installing the incorrect driver. The driver will take advantage of the MMX enhancements if available.

1. If another HSP56<sup>TM</sup> MR driver was previously installed, be sure to remove the software by following the appropriate Uninstallation Procedure provided in the prior manual.

When the computer is turned off, plug the HSP56<sup>TM</sup> MR into an empty AMR slot. When the system is turned on, it will automatically detect the MR card. The installation program will begin with the screen shown below. At this point, insert the HSP56<sup>TM</sup> MR driver disk in the CD-ROM drive and click "Next".

Add New Hardware Wia	zard This wizard searches for new drivers for:
	PCI Card A device driver is a software program that makes a hardware device work.
	< Back Next > Cancel

2. Windows will search for the driver. Choose the "Recommended" option and click "Next".



3. Choose "CD-ROM drive" and click "Next". Continue to follow the "Wizard" instructions to complete the installation process.

Biowse.		Windows will search for new drivers in its driver database on your hard drive, and in any of the following selected locations. Click Next to start the search.     □   Eloppy disk drives     □   £D-ROM drive     □   Microsoft Windows Update     □   Specify a location;     D:\Drivers\intel_v.10_W9x   ✓
---------	--	---

4. System found the driver. Click "Next".



5. Click "finish" to complete the installation.



6. After the installation is complete, the following modem listing should be shown under "Modem Properties" in the "Control Panel".

Modems Properties	? ×
General Diagnostics	
The following modems are set up on this comp	uter:
HSP56 MR	
Add R <u>e</u> move P <u>r</u> opertie	s
Dialing preferences	
Dialing from: New Location	
Click Dialing Properties to modify how your calls are dialed.	
<u>D</u> ialing Properties	
ОК Са	ancel

# **New Feature:**

The HSP56<sup>TM</sup> MR should be connected to an analog line. If the HSP56<sup>TM</sup> MR is connected to a digital line, the modem could be damaged. The message below will appear if the user attempts to use the modem while connected to a digital line.



# **Country Selection Change:**

The country selection can be changed after the installation is completed. Follow the procedure outlined below.

1. Click "HSP56 MR" under "Control Panel".



2. Click and highlight the country in which the HSP56<sup>™</sup> MR will be used. Click "<u>O</u>K" when finished.

Country Select	ction			х
56K	Country:		<u>0</u> K	
	USA	•	Cancel	
	PORTUGAL S.AFRICA			
Selecting a	SINGAPORE SPAIN	th you red in a	are currently a way that violates.	
the telecom	SWEDEN	t coun	itry.	
	TAIWAN			
In addition	UK	berlu if	the correct country	
selection is	USA	peny i	and contect country	
Only select	VENEZUELA	v ed.		

#### **Uninstallation:**

The HSP56<sup>TM</sup> MR can be uninstalled by using the following procedure.

1. Click "Add/Remove Programs" under "Control Panel". Choose



2. HSP56 MR Drivers. Click "Add/Remove...".



3. Click "Yes". The uninstallation program will automatically remove the HSP56<sup>™</sup> MR from the system.



4. The HSP56<sup>TM</sup> MR has been removed from the system.



### HSP56<sup>™</sup> MR Setup using Windows NT Workstation 4.0

Windows NT 4.0 cannot automatically detect the CPU type from different vendors; therefore, we have provided different drivers for the appropriate CPU type. Be sure to use the correct driver for your CPU type. If you are unsure of the CPU type, contact your system vendor.

When the computer is turned off, plug the HSP56<sup>TM</sup> MR card into an empty AMR slot. After turning the system on, follow the procedure below.

1. To install the HSP56<sup>™</sup> MR is done in "Run" under the "Start" menu. Type the path as shown below to start the installation and click "OK".



2. Click "Next" to begin the installation program.



3. Click "Next". Continue to follow the "Setup Wizard" instructions to complete the installation process. To continue the installation program.

Setup Wizard		
	Resource Settings Base I/O Port Address:	Auto
PCP	FIFO Enabled	Auto

4. Click "Finish" to complete Setup.

Setup Wizard	Modem has been successfully installed on your system! You can use the modem after exit this program without reboot the system. Click finish to exit!
	< Back Finish Cancel

Add Remove Properties
Dialing Preferences
Dialing from: New Location
Use Dialing Properties to modify how your calls are dialed
Dialing Properties
Close Cancel

5. The following modem should be listed under "Modem Properties" in the "Control Panel".

#### Uninstallation:

The HSP56<sup>™</sup> MR Modem can be uninstalled by using the following two procedures.

#### **Procedures 1:**

1. Click "Add/Remove Programs" under "Control Panel".



2. Choose HSP56 MR Drivers. Click "Add/Remove..".



3. Click "Yes". The uninstallation program will automatically remove the HSP56<sup>TM</sup> MR from the system.



4. The HSP56<sup>™</sup> MR has been removed from the system. Click "OK".



#### **Procedures 2:**

1. Under "Control Panel", double click "HSP56 MR".



2. Check the box of "Uninstall HSP56 Modem Device".

HSP56 MR	×
Settings Country Selection	
KSP56 MR	
Port:	
Select the port to use with this modem:	
COM3	
Uninstall HSP56 MR Device	
OK Cancel	Apply

3. The following window will pop out, Click "Yes".



4. Click "OK".

HSP56 MR
Settings Country Selection
≪ → HSP56 MR
Port:
Select the port to use with this modem:
COM3
Uninstall HSP56 MR Device
OK Cancel Apply

5. Click "Yes", The uninstallation program will automatically remove the HSP56<sup>™</sup> MR from the system.



#### HSP56<sup>TM</sup> MR Setup using Windows 2000

The HSP56<sup>TM</sup> MR will automatically handle all variations of CPU types. This eliminates the problem of poor performance that results from installing the incorrect driver. The driver will take advantage of the MMX enhancements if available.

#### Installation:

For those who upgrade Window 9x or Windows NT4.0 to Windows 2000, if previously HSP56<sup>TM</sup> MR driver is installed, be sure to **remove** the driver before install Windows 2000.

If HSP56<sup>TM</sup> MR is already been plugged into an AMR slot before install Windows 2000, after Windows 2000 been installed, Click "System" under "Control Panel".

🗟 Control Panel				-	
<u>File Edit View Favorites Too</u>	ols <u>H</u> elp				۲
] ⇔ Back → ⇒ → 🔁   @Search	Folders	()History	e 🛚 🗶 🖻	ð 🎫•	
Address 🞯 Control Panel				<b>T</b>	<i>д</i> о
	õ			ų	<b></b>
Control Panel	Mouse	Network and Dial-up Co	Phone and Modem	Power Options	;
<b>System</b> Provides system information and changes environment settings	Printers		Scanners and		
Windows Update		Options	Cameras	Tasks	- 11
Windows 2000 Support			<b>E</b>		
	Sounds and Multimedia	System	Users and Passwords		•
Provides system information and changes	environment s	ettings	🖳 My	Computer	

Click "Device Manager..." under "Hardware", "System Properties".

stem Prop	erties	? ×
General Ne	etwork Identification Hardware	User Profiles Advanced
Hardware	: Wizard	
3	The Hardware wizard helps yo unplug, eject, and configure yo	u install, uninstall, repair, pur hardware.
		Hardware Wizard
- Device M	anager	
	The Device Manager lists all th on your computer. Use the Dev properties of any device.	e hardware devices installed vice Manager to change the
	Driver <u>Signing</u> <u>D</u> evice Manager	
Hardware	Profiles	
$ \ge $	Hardware profiles provide a wa different hardware configuratio	ay for you to set up and store ns.
		Hardware Profiles
	OK	Cancel <u>Apply</u>

You will find a yellow question mark in front of "PCI Simple Communications Controller" in Device Manager after Windows 2000 been installed. The reason is that Windows 2000 do not have HSP56<sup>TM</sup> MR driver build in. You need to remove "PCI Simple Communications Controller".



Choose "PCI Simple Communications Controller". Click "Action" and choose "Uninstall". A screen will be shown below. Click "Yes" to restart your computer.

🚊 Device Manager	
Action Yew   ++ -+ 💷 🔞 😭 🔀 😹	
Republic Computer Disk drives Disky adapter: Disky adapter: Disky adapter: Disky data controllers	⊠ r computer .
🗯 Start 💜 🧖 🏹 🕹 Basine Marsa 🧐 1 - Bart 🛛 (3) 100 France (de)	System Settin 1/20 PM

System will find a new hardware after computer restarted. The HSP56<sup>TM</sup> MR can be installed by using the following procedure start from step 1.

If Windows 2000 is already been installed before you plug HSP56<sup>TM</sup> MR into an empty AMR slot, system will find a new hardware after computer restarted. If another HSP56<sup>TM</sup> MR driver was previously installed, be sure to remove it before install the new driver.

The HSP56<sup>™</sup> MR can be installed by using the following procedure.

 When the computer is turned off, plug the HSP56<sup>TM</sup> MR into an empty AMR slot. When the system is turned on, it will automatically detect the MR card. The installation program will begin with the screen shown below. At this point, insert the HSP56<sup>TM</sup> MR driver CD/Floppy in the CD-ROM/Floppy drive and click "<u>N</u>ext".

Found New Hardware Wizard	
	Welcome to the Found New Hardware Wizard This wizard helps you install a device driver for a hardware device.
	To continue, click Next.
	< <u>Back</u> Cancel

2. Windows will search for the driver. Choose the "Recommended" option and click "Next".



3. Choose the correct driver location and click "<u>N</u>ext".

Locate Driver Files Where do you want Windows to search fi	or driver files?
Search for driver files for the following har	dware device:
PCI Device	
The wizard searches for suitable drivers in any of the following optional search locati	n its driver database on your computer and in ions that you specify.
To start the search, click Next. If you are insert the floppy disk or CD before clicking	searching on a floppy disk or CD-ROM drive, g Next.
Optional search locations:	
Floppy <u>disk</u> drives	
CD-ROM drives	
Specify a location	
Microsoft Windows Update	

4. System found the driver. Click "<u>N</u>ext". Continue to follow the "Wizard" instructions to complete the installation process.

ind New Hardware Wizard	
Driver Files Search Results The wizard has finished sear	rching for driver files for your hardware device.
The wizard found a driver for	r the following device:
PCI Device	
Windows found a driver for t	his device. To install the driver Windows found, click Next.
a:\mdmchipv.inf	
The wizard also found other these drivers or install one of Next.	drivers that are suitable for this device. To view a list of these drivers, select the following check box, and then click.
🗖 lastell en estates et de services de	rivers

5. Click "<u>Y</u>es" to continue the installation.



6. Click "<u>F</u>inish" to complete the installation of the HSP56<sup>TM</sup> MR.



# HSP56 **ä** MR Technology

#### Verification:

To verify whether the HSP56<sup>™</sup> MR is functioning properly, you can use following procedure.

1. Go to "Control Panel", click "Phone and Modem Options".



2. Key in the area code, click "OK".



New Edit Delete
OK Cancel Apply

3. The following window will show. Choose "Modems".

4. The following modem should be listed under "Modem" in the "Phone and Modem Options". Click "<u>P</u>roperties".

Phone And Mod	em Options	? ×
Dialing Rules	Modems Advanced	
🎒 The	following modems are installed:	
Modem	Attached To	
HSP56 M	R COM5	
1		
	Aga <u>R</u> emove <u>Prope</u>	erues
	OK Cancel	Apply

5. Under Diagnostics, Click "Query Modem"

Field Hardware II	Value D PCI\VEN_8086	&DEV_2416&	SUBSYS_OE001
•			
Command	Response		
Command	Response		
Command	Response		Query Modem

6. If modem detail information is showed, modem works fine. Click "OK" to complete verification modem.

eneral Diag	nostics Advanced		
vlodem Inform	ation		
Field	Value		
Hardware ID	PCI\VEN_8086&DEV_2416&S	UBSYS_OEO	01
•			
Command	[ D		
ATQ0V1E0	OK		
AT+GMM	HSP DATA/FAX MODEM	_	
AT+FCLASS= AT#CLS=2	? 0,1,8 018		
ATI1	A97/C258		-
		-	
		Uuery Mode	em
Logging		75	
Append to	Log	⊻iew log	
		-11	
			_

### Uninstallation:

The HSP56<sup>™</sup> MR can be uninstalled by using the following procedure.

1. Click "Add/Remove Programs" under "Control Panel".



2. Click "Change/Remove" under "Add/Remove Programs".



3. Click "<u>Y</u>es" to uninstall HSP56 MR.



4. The following screen shows HSP56 MR has been removed. Click "Close" to close this window.



# Section 3

### 3.0 Windows95 and Modem Diagnostic Sequence for HSP56<sup>TM</sup> MR Card

If you experience difficulty with the HSP56<sup>TM</sup> MR, follow these steps to try to isolate the possible cause. Continue until you encounter the problem.

- 1. Start Windows95, and select the Microsoft Terminal program in the Accessories group. Make sure the communication setting is at 115200 with the proper COM port selected.
- 2. If the port opened properly, go to the next step. Otherwise, check if you have any other communication software trying to use the same port. If any other communications software is open, close it. If not, switch to a different COM port. If the problem persists, make sure the card is pressed firmly into its slot. You should also try another slot, and clean the contacts with a pencil eraser. If you can't get it to work, then call technical support for help.
- 3. Type AT<enter>, you should see an 'OK' response. If nothing happened at this point, this indicates that the modem is not getting the proper IRQ. In Windows 95, use the modem control panel to change the IRQ.

### 3.1 Windows 95 Hyperterminal test for HSP56<sup>TM</sup> MR card

If you experience difficulty with an HSP56<sup>TM</sup> MR, follow these steps to try to isolate the possible cause. Continue until you encounter the problem.

1. Go to the "Start" menu, choose "Programs" and then "Accessories".



2. Double click on "Hyper Terminal". Run Hyper Terminal to open the Connection windows.



3. Key in the area code then click "Ok".



6. Enter a name and choose an icon. Click OK.

Connection Description				? ×
New Connection				
Enter a name and choose a	n icon fo	r the conn	ection:	
<u>N</u> ame:				
test				
<u>l</u> con:				1.1
	MC			<b>%</b>
		OK	Car	ncel

7. Verify the modem selection. Enter any phone number, and click OK.

Phone Number	? ×
🧞 test	
Enter details for	the phone number that you want to dial:
Country code:	United States of America (1)
Ar <u>e</u> a code:	408
Phone number:	
Connect using:	HSP56 MR
	OK Cancel

8. Click on "Cancel", and the modem will not dial. This will leave you at the terminal window.

onnect		
🧞 test		
Phone number:	9,383 9369	<u>M</u> odify
Your Jocation:	Default Location	Dialing Properties
Calling card:	None (Direct Dial)	

6. Once you get to the terminal window, you can enter commands to the modem. Type AT<enter>. You should see an 'OK' response. If nothing happened at this point, this indicates that the modem is not getting the proper IRQ. In Windows 95, use the modem control panel to change the IRQ.

